

## **Demonstration of an Innovative Capping Technology at the Anacostia River in Washington, D.C.**

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Sediment contamination may affect the health of organisms and provide a source of contaminants to the aquatic food chain. The U.S. Environmental Protection Agency (U.S. EPA) has identified several areas (watersheds) of probable concern in the United States. ORD's Superfund Innovative Technology Evaluation (SITE) program, in collaboration with the Hazardous Substance Research Center (South and Southwest), and the Anacostia Watershed Toxics Alliance (U.S. EPA Region III), is evaluating an innovative sediment capping design to reduce exposure of chemical compounds in the sediment of the Anacostia River in Washington, DC. Mitigation of the contamination in the Anacostia River has been a collaborative effort with a variety of participants and/or sponsors involved with the Mayor's Anacostia Waterfront Initiative, including the U.S. EPA, the National Park Service, the District of Columbia Department of Health, the U.S. Navy, citizen groups, and several industrial firms. This demonstration may serve as a blueprint to determine the extent to which capping can be employed for sediment remediation. Sediments in the Anacostia River are contaminated with polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and metals in concentrations that may hinder commercial, industrial, and recreational uses. Given the economic, logistical, exposure, and ecological concerns of various sediment removal and treatment technologies, sediment capping has the potential to afford significant advantages for contaminated sediment management strategies. The focus of this SITE technology demonstration is the evaluation of the long-term physical stability of the installed AquaBlok cap, the extent of the containment of ground water seepage migrating through the cap, and an assessment of the impact of the cap on existing flora and fauna. The potential for gas and/or organisms to migrate through the cap is also being evaluated. Cap installation activities using conventional equipment were conducted in March/April 2004, followed by one-month and six-month post-capping sampling events that occurred in May and September 2004, respectively. The evaluation will continue with additional sampling events scheduled at 18-months (September, 2005) and 30-months (September, 2006) after cap installation. Results from initial sampling activities indicate physical stability of the AquaBlok cap, as demonstrated by the high shear stresses required for erosion of core samples, and that placement of the cap may be resulting in the blockage of the natural seepage pathways.

through the underlying sediment, causing the redirection of ground water flow in the cap vicinity. Data from this evaluation should allow a decision-maker to have more confidence in deciding whether a proposed cap will be physically stable in the long-term to contain contaminated sediments.